

MAY, 1870.

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THE
AMERICAN FARMER:

A
MONTHLY MAGAZINE

OF
Agriculture, Horticulture, Rural

AND
HOUSEHOLD ECONOMY.

THE OLDEST AGRICULTURAL PUBLICATION IN THE UNITED STATES.
ESTABLISHED 1819.

PUBLISHED BY
FRANK LEWIS,
No. 4 SOUTH STREET, NEAR BALTIMORE STREET,
BALTIMORE, Md.

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AMERICAN FARMER

Established 1819,
BY
JOHN S. SKINNER,
BALTIMORE, MD.

AGRICULTURE, HORTICULTURE, RURAL AND HOUSEHOLD ECONOMY.

"O FORTUNATOS NIMIUM SUA SI BONA NOBIS
AGRICOLAS." VIRGIL.

SEVENTH SERIES.

MAY, 1870.

VOL. I.—No. 5.

A MONTHLY MAGAZINE.

N. B. WORTHINGTON... *Agriculture's Editor.*
FRANK LEWIS... *Publisher.*

No. 4 SOUTH STREET, Baltimore, Md.

\$1.50 A YEAR, IN ADVANCE.

THE OLDEST AGRICULTURAL PUBLICATION IN
THE UNITED STATES.

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Agents wanted in all sections of the country to canvass for the *American Farmer*. A liberal discount will be allowed.

Parties who wish to purchase any description of articles, at lowest prices and from reliable parties, would do well to avail themselves of our Business Agency, which does not charge subscribers any commission for purchasing.

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Baltimore Markets, April 30, 1870.

COFFEE.—Rio, 16½ a 18½ c. gold, according to quality; Laguayra 16a 18½ c. gold, and Java 22a 23½ c. gold.

COTTON.—We quote prices as follows, viz:

Grades.	Upland.	Gulf.
Ordinary.....	20 a—	00
Good do.....	20 a—	00
Low Middling.....	21 a—	00
Middling.....	21 a—	00

FERTILIZERS.—Peruvian Guano, \$—a—; California, \$70; Rodunda Island, \$30; Patapasco Company's, \$60; Reese & Co's Soluble Pacific Guano, \$60; Navassa Guano, \$30; Chesapeake Guano, \$60; Flour of Bone, \$20; G. Ober's (Kettiewells) AA Manipulated, \$70; A do, \$60; Ammoniated Alkaline Phosphate, \$55; Alkaline Phos. \$45; Baltimore City Company's Fertilizer, \$40; do., Flour of Bone, \$60; do., Ground Bone, \$45; do., Poudrette, \$25; Baugh's Raw-bone Phosphate, \$52.00; Rhodes' Super-Phosphate, \$50; Rhodes' Orchilla Guano, \$30; Lister's Bone Super-Phosphate \$55; Berger & Butz's Super-Phosphate of Lime, \$56; Andrew Coe's Super-Phosphate of Lime, \$60; Zell's Raw Bone Phosphate, \$56; Zell's Super-Phosphate of Lime, \$60—all per ton of 2,000 lbs.; Ruth's Challenge Soluble Phosphate, \$60; Whann's Raw Bone Phosphate, \$56. Pure Ground Plaster, \$14.75 per ton, or \$2.25 per bbl. Shell Lime slaked, 6c., unslaked, 10c. per bushel, at kilns. Sulphuric Acid, \$3 per carboy. FLOUR.—Howard Street Super, \$5.00a5.25; High Grades, \$5.62a5.00; Family, \$6.25a7.50; City Mills Super, \$5.25a5.50; Baltimore Family, \$5.50a9.00. RYE FLOUR and CORN MEAL.—Rye Flour, \$5.00a6.00; Corn Meal, \$4.75. GRAIN.—Wheat.—Good to prime Red, \$1.40a1.50; White, \$1.50a1.60. Rye.—\$1.00a1.05 per bushel. OATS.—Heavy to light—ranging as to character from 60a65c. per bushel. CORN.—White, \$1.09a1.14; Yellow, \$1.10a1.12 per bushel. HAY AND STRAW.—Timothy \$22a23, and Rye Straw \$22 a— per ton. PROVISIONS.—Bacon.—Shoulders, 13a— cts.; Sides, 16½a17 cts.; Hams, 20a21 cts. per lb. SALT.—Liverpool Ground Alum, \$1.50a1.60; Fine, \$2.10 a2.30 per sack; Turk's Island, 50 cts. per bushel. SEEDS.—Timothy \$4.25a4.50; Clover \$5.50a6.00; Flax \$2.25. TOBACCO.—We give the range of prices as follows: Maryland.

Frosted to common.....	\$5.00a 5.50
Sound common.....	7.00a 8.00
Middling.....	9.50a11.00
Good to fine brown.....	11.50a15.00
Fancy.....	17.00a30.00
Upper country.....	7.00a35.00
Ground leaves, new.....	5.00a11.00

Ohio.

Inferior to good common.....	4.00a 6.00
Brown and greenish.....	6.00a 8.00
Medium to fine red and spangled.....	9.00a12.00
Fine spangled.....	12.00a25.00
Fine yellow and fancy.....	30.00a40.00

Wool.—We quote: Unwashed, 30a33 cts.; Tub-washed, 49a51 cts.; Piled 30a33 cts.; Fleeces 49a45 cts. per lb. CATTLE MARKET.—Common, \$4.00a5.00; Good to fair, \$5.00a5.50; Prime Beeves, \$8.00a8.75 per 100 lbs. Sheep.—Fair to good, 5a8 cts. per lb., gross. Hogs.—\$13.25a14.25 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by HENRY & Co., Produce and Commission Merchants, 67 Exchange Place.

BALTIMORE, April 30, 1870.

BUTTER.—Western solid packed, old, 15a20 cts.; new, 25a30; Roll 30a35, latter grass, New York, new, 36a38; Franklin street, 28a30 cts. BEEF—35a40 cts. CHICKEN.—Eastern, 17a19; Western, 17 cts. DRIED FRUIT.—Apples, 6a7; Peaches, 8a10. EGGS.—20 cents per dozen. FRATHERS.—Live Geese, — to — cents. LARD.—Western, 16½a17; City rendered, 18 cts. TALLOW.—10a11 cents. POTATOES.—60a70 per bushel.

Persons ordering Goods of our advertisers will confer a favor by stating that they saw the advertisement in the "American Farmer."

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Carpets—A. Nachman.
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Webster's Dictionary—G. & C. Merriam.

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Agricultural.

MAY.

"On the slope of a hillock be placed my retreat,
With a wood at the back, and a stream at its feet;
In front be a meadow, rich, verdant and gay,
Where my horse and a cow may find pasture and hay."

"A garden, be sure, I must not be without,
With walks or high hedges well fenced all about,
All blushing with fruit, and all fragrant with flowers,
With dry gravel-walks, and with sweet, shady bowers."

Work for the Month.

March and April are called indeed spring months, but it is only with May that spring life is really opened to us. Now every thing with which we have to do is full of movement, and we must keep pace with it or suffer for the season through.

THE CORN FIELD.

The corn crop is now of chief interest. It is to be supposed that the ground has been deeply and thoroughly ploughed, and that harrow and roller have done their work of so laying the overturned sod, that it will not keep growing at every gaping seam, but die and rot, as it should, to answer the ends of the turning. This having been done and the ground really put into order before planting, it will be no hard work to follow up with the needful cultivation to lay the crop by before harvest, and so fulfill all the conditions precedent to a very large production. Let this be kept in view from the start—to finish the corn working by wheat harvest; and, if that can be insured, plant as many stalks as are necessary to a crop of ten or twelve barrels to the acre, viz. hills of two stalks each, not more than three and a half feet apart each way. Of course this treatment assumes good sod ground, capable of a full crop.

THE TOBACCO FIELD.

Next in order after corn-planting, comes the preparation of the tobacco ground. If all has had one good ploughing it will be an easy matter now to give the second and make the necessary preparation of the hills in full time to meet the demands of the plants as they advance. The ploughing should now be shallow, not disturbing the sod which has been turned down, but sufficient to destroy the springing grass and to mix thoroughly with the surface soil whatever fertilizing material is to be used. After this working, the checking of the ground and making the hills may advance as the progress of the plants require, for it is not desirable to have them made long before the time of planting. Lay off, at a distance of two and a half to three feet each way, and make a broad flat hill. If plants are very abundant, begin to set them out as early as practicable. They grow with more certainty early in the season. But if there be prospect of short supply, let them stay long enough in the beds to be well rooted; as well developed roots are of still greater necessity than an early season.

In setting the crop, let care be taken to put together plants of uniform size. This can be done by drawing over the beds, so as to take out first only the larger plants; then a smaller size may still be drawn for a separate planting.

The beds must have special attention during the month. When the conditions are such that plants grow fastest, weeds and grass grow fastest too, and must not be allowed to usurp the room needed for their more valuable companions. Keep the beds well picked, and dressed with compost or some concentrated fertilizer. The aim of the planter should be to have his crop set certainly by the last of June, and by the 15th if practicable, and to do this it is of the first importance to have an abundant supply of well grown plants.

The interval between corn-planting and the time to plant tobacco is a suitable one for getting the old crop to market. Keep the bulks that have been conditioned heavily weighted, so that they may retain their moisture, and be fit to be handled for packing when leisure allows. The readiest way to get the tobacco in condition for packing is to hang on sticks to dry, after it has been long enough in the bulks. Once thoroughly dried, it may be always safely packed, and should be got rid of at once.

POTATOES.

The first ploughing of sod land for potatoes may be given this month. It is very common and we think very unwise practice to plant the late crop now. The middle of June is quite early enough for this, but in the meantime the ground may be got ready. Old sod is best, and if manured on the surface in the fall, gives the best chance for a full crop.

ROOT CROPS.

Root crops of every sort, except turnips, may be planted in this month, but beets of any kind may very well wait till June.

FIELD PEA.

This crop, for whatever purpose, should be planted when the ground is warm enough to make it sprout freely; otherwise the seed is apt to rot. For land improvement sow one and a half to two bushels to the acre broadcast. They should have the full season's growth, for the stem and pods should be pretty well matured before turning under. To feed them to stock, especially fattening hogs, is a much better use to put them to, as they make much good meat and still improve very much the soil.

If the peas are to be gathered, they should be sown in drills three feet apart. It is not well to depend on planting or sowing in the corn field for any useful purpose, in this latitude.

MILLET.

If a crop of millet is needed to make out a full supply of hay, let the ground be finely prepared and abundantly manured, so that it may be sown by 1st June.

SORGHUM.

If this is to be planted for any purpose, have the ground rich and in fine condition, and do not plant till it is warm enough to make quick growth. It is feeble in its early stage of growth, and should be carefully guarded against being overcome with weeds.

CLOVER FIELD.

If the clover be intended for the improvement of the land as the first consideration, stock of every description should be kept from the field till the crop comes into bloom. Then it may be cut for hay, if that be the pur-

pose, or stock may be turned on to any number, as the more it is now trampled, the larger the quantity that gets to the ground, and the greater the benefit. If the greatest amount of pasturage be the object, then a moderate grazing may be begun as soon as there is a full bite.

BROADCAST CORN.

If there is probability of scarce pasturage during the drought of summer and early fall, nothing supplies the deficiency better than corn broadcast or in drills about two feet apart.

SWEET POTATOES.

This crop should enter much more largely into common consumption, and there should be a crop grown outside of garden limits, that will insure an ample supply.

WORKING STOCK.

There is too much temptation when grass becomes sufficient, to rely upon it for working stock. This is bad policy. They need more substantial food to enable them to do hard work. Corn, chopped rye, and corn fodder or sweet hay, should be their main supply, varied and relished with clover or other green food brought to their stalls. It is not well to have them run to grass except on leisure days, and then they should be taken up in the evening.

COWS AND CALVES.

These are subjects of much interest now. Whenever it becomes practicable, the cow should be full fed with grass, but great care is to be observed in allowing them to go to the clover field for the first time, or early in the morning when dew is on. They should have some food before going out, and at first be permitted to take only a moderate feed of the green grass.

Calves on the whole are better tied up, but should have their milk with regularity three times a day. The tying and daily handling is very useful in gentling them, and the utmost gentleness should be exercised with them. The very best thing for the calf as to growth and thrift is to have him run with the cow, but it makes him wild, and is too expensive. When tied up, he will soon begin to partake of other food, and should be encouraged to do so by tempting him to it with whatever he may fancy.

SHEEP SHEARING.

This should not be done in this latitude till after the middle of the month. Care should be used in handling, that there be no bruises from struggling and no cuts in the skin from the shears. The practice of washing the wool on the back of the sheep is accompanied with too much risk of cold to the sheep and those who handle them, and should, we think, be abandoned. After shearing, a long, cold rain is dangerous to the flock, and there should be means of protection against it.

The Vegetable Garden.

This is a month of especial interest in the vegetable garden. If the ground has been broken and manured as heretofore directed, it will be an easy matter now to have done in due time the various things that need attention. As the ground warms up with the advancing season, the planted crops and weeds

will advance alike, and the former will need the gardener's protection and the latter challenge active hostilities.

Asparagus.—Keep the beds clear of weeds and loosened up.

Cucumbers and Melons.—Melons of the various sorts should be planted without delay, making broad hills over an abundant deposit of well-rotted manure. A fruit so valuable for summer use should have the best treatment. On a smaller scale the cucumber should have the same treatment. The Watermelon needs a sandy loam,—the lighter the better, so it be rich,—and inverted sod seems almost a necessity. Put a dozen or more of seeds to the hill, and when these begin to break the ground, put in as many more to make sure of enough. Thin finally to two plants.

Cabbage and Cauliflower.—Set out a few Cabbage plants from time to time. Thin beds for late planting, if necessary to make the plants strong and stocky. Protect against the fly by frequent dustings of dry ashes, water slaked lime, and flour of sulphur.—Keep crop of fall-planted Early Yorks well worked. Sow Cauliflower seed for fall crop, and keep growing crop well worked.

Celery.—If seed have been sown for early use, plant in moist ground whenever the plants are fit. It is now time to sow in rich, clean beds, for general crop to be planted in July.

Corn.—The sweet, early corn, for table use, should be planted from time to time for continued supply.

Carolina and Lima Beans.—Plant enough of these for both summer and winter supply.—Properly preserved, and there is no difficulty in drying them, they are about as good in winter as in summer. Plant in rich, light soil, and set the poles strongly before planting.

Carrots, Parsnips and Beets.—Plant all these for principal crop, if not done already, and work and thin such as are growing.

Potatoes should be worked deeply as soon as they show above ground.

Peas.—Sow successive crops at intervals of ten days, Marrowfat and Champion of England.

Lettuce.—Sow seeds for late planting.

Onions.—If seed have been sown early, thin to three inches distance, and keep quite free from grass. They will need much finger work, as the hoe cannot be safely used close to them.

Tomatoes and Egg Plants.—Plants of these should be put out from the 10th to the 15th of the month, and in the meantime, it is desirable to have them in pots to harden in the open air during the day and when the nights are warm. Pepper plants should have the same treatment.

A correspondent proposes the introduction to the Southern States of the date palm, the sugar palm, and the coconut palm—those palms furnishing fruit, sugar, oil, fibre, etc. He argues in favor of trying at least the experiment of introducing these Indian palms; and he holds that, if properly planted and cared for, they will flourish and become profitable to the South.—*Scientific American*.

Butter and Cheese.

One of the greatest grievances which consumers of farm products have to complain of is, not only the very high price of butter but the difficulty of getting good, at almost any price. All the really good butter made in the region around Baltimore seems to be engaged in advance by families willing to pay enormous prices, at a fixed annual rate. It does not make its appearance in the market at all. Such as we find in market, if worthy the name of good butter, claims at least, to come from Delaware. Maryland has no name for butter that can satisfy a fastidious consumer. And what is true of Maryland is quite as true generally elsewhere. A very small proportion indeed of the material supplied by our pastures and our cows is made into such butter as a civilized and educated people ought to eat. This is a shame and reproach to our farmers' wives, or whoever may be responsible for it, and they should look to it, if they are independent of the financial consideration, that their characters for good management be redeemed.

It is the misfortune of a great many people, we believe, that they do not know what good butter is or do not care, and we really find sometimes very respectable people who are willing to feed themselves and children on the grease that is by great stretch of courtesy allowed the name of butter.

Of cheese, a wholesome product of the dairy, easily made, and yielding great profit, we make in Maryland almost none, and if it were undertaken, so unapt are our people in dairy matters, judging by their butter, that it might take a very long time to "get the hang" of cheese making.

This May season of grass, suggests the thought of sweet butter, and we introduce it, not for the purpose of a lecture, nor an extended essay, but for just a few useful hints which may help the careful butter or cheese maker to better results.

Utter and absolute cleanliness as regards everything connected with or coming in contact with dairy products, is a leading consideration. A clean yard, a very neat dairy-maid, thorough washing of the udder, constant scalding and scouring of utensils, shelves, floors, and absence of everything around the dairy that could give rise to disagreeable odors—all are essential. Only by such care, all around, can the first requisite, *clean milk*, be made sure of.

The condition of the milk is affected, of course, by that of the cow, and the milk of a diseased cow should be held as an abomination.

Very closely allied with this is the milk of cows that have been maltreated in any way—that have been beaten, or over-driven, or chased by dogs, or abused in any way. Excitement of any kind disturbs seriously the physical condition of the animal, and the character of the secretion.

Such condition of the atmosphere in which milk is kept as tends to the growth of what is known as "mould"—that is, a warm, moist air, with insufficient circulation—is not fit for it and damages its butter making qualities.

Low, wet, clay lands, and all such pastures as produce weeds and growth of various kinds,

are unfit for dairy cows. They will bite off leaves and consume plants that give an unpleasant taste to the milk and butter. An old pasture, besides other good qualities for dairy purposes, has this, that all such growth has been destroyed and only sweet grass left.

Concluding these brief suggestions, we would remark that as no branch of husbandry is more interesting, so none is likely to be, for a long time to come, more profitable than the several departments of the dairy, and we hope to see much of our Maryland land that, however productive in grass, is failing to make full crops of wheat, turned in this direction. We hope our people will give their special attention in much greater number to butter, and that they will make sure that it is *good butter*.

Keeping a Farm Journal.

No doubt there are many farmers who commence business with a determination to keep a daily record of their operations on the farm, and the results of them. This resolve is carried into execution for a time, but after awhile intermissions in these jottings occur, and finally cease altogether. This delinquency does not prove that the practice is not a good one, and as an incentive to perseverance, we would cite a case of a man who commenced farm life barehanded, but eventually attained great wealth—a result he attributed in great measure to a daily journalizing of his farming operations—a practice kept up for forty-five years, and not then discontinued.

These daily memoranda were made in books of convenient size, each containing the records of a single year, and when full, properly labelled and filed away for future reference when desirable. They contained the number of fields farmed each year, the character of the crop, the estimated or actual yield, the amount of labor bestowed, the names of the parties employed each day, the rate of compensation, the daily receipts for stock and farm produce sold, money paid out, and for what purpose, the character of the weather, together with such reflections as the current news of the day supplied. This journal was uniformly written up each night just before retiring to rest, but when the party was absent, as was occasionally the case, it was the duty of the person in charge to make the necessary memoranda each evening.

These records were often appealed to to decide disputed points in regard to the weather and crops of particular seasons, and not infrequently taken before the courts for the purpose of determining the date of particular local transactions. At first these nightly records may prove rather irksome, but if the practice is kept up perseveringly for two or three years it becomes a habit, pleasurable rather than otherwise, and profitable to the parties who steadily pursue it.—*Amer. Agr.*

GAPES IN CHICKENS.—A correspondent of the American Agriculturist gives the following mode for preventing gapes in chickens. He says he has treated his young chickens in this way for several years with complete success. When the chickens are in condition to take from the nest, he puts them with the hen in a coop with a board bottom, so as to keep the young ones from the cold and damp ground. They are fed with Indian meal, on which boiling water is poured from the tea-kettle, well stirred, and allowed to cool. The whole secret is to keep chickens dry and warm when quite young, and give them cooked food.—*Ec.*

"The Old Paths" in Agriculture.

[We publish the following article (from the *Southern Planter and Farmer*) at the request of the author, Dr. David Stewart, to whom we are indebted for many valuable contributions.—*Ed. American Farmer.*]

Virgil recommended both the ashes of volcanoes and those of wood with shells, in his celebrated essays before the Christian era.* Perhaps the superior quality of the potatoes of Bermuda is due to the fact that these volcanic ashes are there used as a manure, especially as the same potato, when planted in our soil, produces the most inferior variety. Virgil was not acquainted with the composition of these manures, nor their relation to the ashes of the plants that depend upon them *specially*, as "soil, plant food." Tradition or experience has indicated the use of the same volcanic ashes in Bermuda, without a knowledge of their composition, under the name of Puzzolana, (evidently of Italian origin,) composed of soluble silicates like the Pumice stone which Virgil used as manure 2,000 years since. The ashes of the potato indicates the use of more soluble silica than any other plant, to form its haulm or vine and the tuber yields ashes that are more soluble than those of any other plant. By a sort of intuition, more likely than by accident, or more probably by observing the spontaneous development of certain plants in relation to ashes, and the fact that the pine tree naturally follows the oak, (which yields much more potash; leaving, however, a sufficiency to support the pine, the ashes of which yield only one per cent., we ultimately arrive at the rationale, coal is substituted for wood and the cheapest natural supplies of potash are substituted for ashes, especially as the artificial supply fails and becomes relatively worthless on account of its bulk, uncertainty with regard to its purity advances with the price.

Bones, although a comparatively soluble salt of lime, are now admitted to be worth *twice* as much when *only one tenth* of their weight is rendered soluble in water, whereas, sand is insoluble in the strongest acids, however finely powdered, nevertheless, it dissolves in pure water in proportion as it is associated with *alkaline* bases, and in this respect it is the same, whether we call it pumicestone, as Virgil did, or Puzzolana, or wood ashes, or green sand, or Jersey marl.

The characteristic of *all* ashes, is silicic acid or common sand, that is more soluble than that which constitutes ninety per cent. of the *finest* clay in *proportion* as it is intimately associated with potash or some *alkaline* base.

If Virgil's experience in agriculture upon soil abounding in potash rocks indicated the use of ashes *as a manure*, and the subsequent experience in Europe that the removal of fagots from the vineyards ruins the crops unless the ashes are restored, even among the *primitive* rocks, how much more do we *risk* in labor and the use of other expensive fertilizers on our alluvial soils, unless we systematically restore with clover its peculiar food as the most economical preparation for the cereal crops, especially as Dr. Voelcker has so abundantly demonstrated to the satisfaction of all the intelligent agricultural editors in America

and England, that even the best "superphosphates" fail utterly in producing clover on some soil unless potash manures are also applied.

I understand that one of the most successful growers of choice wheat on the E. Shore of Maryland, attributed his success on a poor soil to leached ashes, which at that time were abundant in Baltimore. Now coal is substituted for wood, and soda or "concentrated lye," is made directly from sea salt, the refuse of which is worthless as a manure except for sea plants, upon the same principle that coal is concentrated wood and the "concentrated lye" is substituted for both the ashes of wood and sea plants. So also, we may have a concentrated substitute for wood ashes, yielding not only seven fold more potash, but more soluble phosphates and silicates, which can be diluted to any extent *on the farm* with lime, and thus reduplicate its value and double the area within which it is now restricted by freightage and hauling. While farmers receive three dollars for wheat, or even half that amount, they might pay 50 per cent. margin, on fertilizers over the cost of crude material, but now that wheat is 25 per cent. below the cost of its production even in our Western States, and much more on the seaboard, every neighborhood will manufacture its own fertilizers, and means must be provided, whereby this will be practicable. The only alternatives are a resort to the old system of Cato and Virgil which have been endorsed by more than two millenniums, using ashes or some of their cheap substitutes, and depend on clover as a source of ammonia as suggested by Dr. Voelcker, or on the other hand diminish the relative cost of packages, freight, &c., &c., by doubling the usual per cent. of the *essential* elements in all fertilizers, as it can be easily demonstrated that 36 per cent. of soluble phosphate of lime at \$100 per ton, is cheaper than 10 per cent. at \$50 per ton, and that the latter may be made for half the price *extemporaneously* by the farmer.

DAVID STEWART, M. D.

Port Penn, Delaware, 28 January, 1870.

N. B.—The most economical application of the unslacked ashes of wood, is in combination with caustic lime slacked so as to preserve both in a fine dusty powder as follows: spread the quick lime six or eight inches thick, throw upon the centre of the layer of lime one or more buckets of water, and when slacked *then* dump a barrel of ashes thereon—now heap up the quick lime, adding a bucket full of water for every bushel. When cold, preserve it in a sharp heap under cover or in barrels, filling each by a shovel full from the centre and sides of the pile alternately, and allowing one bushel of ashes to each barrel of *slacked* lime. For the destruction of *all* fungi, and especially rust in wheat, a top dressing for clover, grass, or corn, one bushel of lime thus combined, is worth any 10 bushels as a manure, and may thus not only economize time but eke out the usual scanty supply of wood ashes on the farm and double its efficiency.—*See Georgy. 346-350 and 358.*

D. S.

Best Method of Tobacco Culture.

[The following is taken from the Petersburg Weekly Index, whose agricultural matter we always read with interest. The "well considered" article which it, and a number of other Journals, have credited to the New York *Tobacco Leaf*, originated in the editorial columns of the *American Farmer*. The *Tobacco Leaf* is an able Journal devoted to the interest of the tobacco trade and not to tobacco cultivation. It does however reproduce, almost without exception, whatever appears in our paper on the subject, and *sometimes* fails to give us credit, while once it attributed one of our articles to another Journal.—*Ed. Am. Farmer.*]

Under this caption we find a well-considered article in *The Tobacco Leaf*, which is worthy of reproduction for the benefit of our planters. It affords confirmation of what we have several times advanced in these columns, that tobacco, to be profitably grown, should only be planted on lands highly manured. In former times this was well enough understood; but after the introduction of guano the character of the staple underwent great deterioration. Finding that the use of this manure produced a large plant, the cultivation was extended over a wider surface, embracing soils not adapted to its production. The consequence was a leafy, but a light plant, destitute of body and deficient in the rich, oily principles on which the value of the article essentially depends; thus causing no small portion of the crops of late years to come under the classification of "nondescript." We heartily endorse the position of the writer of the article, that the planter who proposes to cultivate ten acres should concentrate all his manure on half the surface. The effect would be to double the weight of crop, while the expense of tillage would be reduced one-half; and such a crop would net a greater profit than could possibly be derived from double the area, bearing light chaffy stuff. Such tobacco is the very best for shipping purposes, which always commands good prices. For high priced manufacturing tobacco, no artificial preparation of the land can take the place of virgin soils.

It is entirely practicable, on land prepared as recommended, to raise from 1,500 to 2,000 lbs. of tobacco to the acre. We have seen it done. But we are not prepared to advise the introduction of the Connecticut seed leaf. It would doubtless prove a very different article here from what it is in the Connecticut valley. There are certain varieties of this plant which seem specially adapted to particular climates, though for a year or two some of their characteristics may be continued when transplanted beneath other skies. We need nothing better in Virginia than the Pryor for shipping, and the Oronoko for manufacturing.

Here follows the article to which reference has been made:

From the best information we can get, the acreable yield of tobacco in the chief tobacco-growing counties, does not, at the most, exceed 800 lbs., and this is, we think, a high average. We doubt very much whether 700 lbs. would not be nearer the truth. In the valley of the Connecticut the acreable product is spoken of as being from 1,500 to 2,200 lbs.,

* See Georgy. 346-350 and 350-358.

See Premium List.

and sometimes reaching 2,800 lbs. Were crops so extraordinary, as compared with our own, not well attested, we should doubt the occasional statements of the papers, for the reason that it is difficult to account for a difference so remarkable. We have no recollection of even a maximum crop having reached the minimum there of 1,500 lbs. If it be difference in the variety grown, that may be easily remedied. We cannot supply ourselves with the Connecticut seed leaf, and need not fear deterioration in quality, for in that point we should be equally gainers, the price of the Connecticut tobacco per pound, exceeding ours as much as the weight per acre.

It is not to be doubted, that the difference in weight per acre is owing chiefly to the difference of the method of manuring, and to this point we think it well to draw the attention of our tobacco growers. When it is demonstrated that the same amount of labor will make from one plant quite double the amount of product of our best lands, the only difference being in the quantity of manure used, it becomes a considerate manager to estimate the value of that manure, and to look about to ascertain where it may be had. We can not, as in past times, bestow our labors on two acres when one will produce the same crop. We must give up our old notions of cultivation and manuring.

Let the planter, therefore, that means to plant or manure 10 acres, put all the manure on 5. Let him manure these well with yard manure, and give them, besides, a heavy dressing of the best commercial fertilizers he can get. What if it costs \$20 to \$25 to manure an acre that will yield him probably \$100? It is in such crops as this, that yield largely per acre that he must be bold and liberal. Besides the fertilizing material is by no means all spent on the crop. A heavy manuring will insure, besides, the following wheat crop, and the clover, to be sown, with it, and so the ground will be permanently enriched.

Tobacco has been always charged with being an exhaustor of the soil, but the charge can not be maintained under any system of good management. No crop grown makes so beautiful a preparation for grass seeds, which should be the chief reliance for permanent fertility. If the ground be well manured for tobacco, nothing is more sure under ordinary circumstances, than a good stand of grass seed of any description that may be sown. To make a heavy crop of tobacco, it is important to give a deep working also, not less than 10 inches in depth.—*The Tobacco Leaf.*

Improving Grass Lands

The grass crop is, without doubt, one of the most if not the most important of any to agriculture. It is the basis for all successful farming. It is the natural food of our most useful animals, and without grass we should soon have no stock, no manure, and scarcely any cultivated crop. The money value of the grass crop in the United States is immense. Lewis F. Allen, in his work on American cattle, estimates the number of neat cattle in the States and Territories, in 1867, at 28,145,240 head, and puts their value at a thousand millions of dollars. That is only one item that may be credited to grass; for if we add the

annual product of the ten millions of milch cows, together with the horses and the sheep and wool of the country, we shall begin to appreciate how much the nation owes to grass for its prosperity and wealth. But to dairy farmers, who owe so much to this crop, and which if it failed but one season, wide spread ruin would stalk abroad, its importance need not further be discussed.

The great question with dairy farmers today and at all times, should be in what way can grass be best made to thrive and produce abundantly? The question is a very broad one, and we shall have space only to make note of a few points. In the old dairy districts of New York, we have been cropping now nearly sixty years, and from inattention to pasture many farms are deteriorating. The fact cannot be covered up, even though the price of land has advanced in these districts from forty dollars to one hundred and fifty dollars and two hundred dollars per acre.

In the first place, many pastures are habitually overstocked. By this practice the roots of the grass and the whole plant are kept so small that its growth is feeble, and not one-half the feed is afforded that the land would produce if stocked lightly a year or two and the grass allowed to get a good, thrifty start. But this is not the only disadvantage from overstocking. The feeble growth of the grass allows other plants to creep in, and the grounds soon become overrun with weeds, which, on account of their not being cropped by stock, grow in great luxuriance, maturing their seed and thus impoverishing the soil. The curse of American dairying to-day is weeds. When once they get full possession they become so formidable that the farmer is often disheartened and gives up their eradication.

Many farmers have an erroneous notion in regard to the destruction of weeds on grass land. The impression prevails that the only way of getting rid of weeds is to break up and thoroughly cultivate the ground in hoed crops. This is not always convenient or even desirable, for in many cases it cannot be done without breaking up the herd or dairy, while some uneven surfaces cannot be ploughed. There is another way of killing weeds, such as the daisy, and that class of plants, by the liberal use of manure and grass seed. We have eradicated white daisy in several instances by simply applying barn-yard dung and plaster, and strewing the ground with clover. Establish your clover upon the soil and feed it until it is luxuriant, and it just lays hold of the daisy and other weeds and chokes the life out of them.

The question of top-dressing pastures does not receive that attention in dairy districts that it deserves. It is true, plaster is used quite extensively in some sections, but this is not a manure in the strict sense of the word. Plaster stimulates the growth of plants, but they must be supplied with organic matter—food coming from the decay of vegetable matter of the decomposition of animal manures. When crops are removed from the lands that are continually plastered without manure, they will, in the end, as surely become worn-out and exhausted as he who tries to live upon stimulants and food lacking the elements of nutrition.

Muck or dry earth used as an absorbent of liquid manures, makes a valuable top-dressing for grass lands. We are of the impression that very rank manures may be applied in early winter with success. Upon fields that are tolerably level, the wash sinks into the soil, and is carried to the roots of plants; but on side hills, or where the manures are likely to be washed away by the spring floods, the application should be at such season as to avoid loss. Where manure is spread in winter evenly over grass lands, the freezing and thawing mellow and pulverize it, and grass roots feel its influence early in spring, becoming vigorous and thickening into a dense, close sward.—X. A. Willard, in *Rural N. Yorker.*

What is the Matter?

The following, which is clipped from the *Western Farmer*, we copy for the purpose of comment. It is sensible enough but commonplace. It is just what every body says. "The gentleman who proved to be a wheat buyer," and discourses so flippantly on the science of wheat culture, says just what every other gentleman says who supposes he knows all about it, (and who doesn't think he knows?)

The trouble is that no one rises above this argument of "exhaustion of the wheat growing elements." For our own part, we do not believe that to be the cause of the universal falling off of the wheat average throughout the United States, that the harvests of late years have exhibited, and we wish attention to be drawn away from this common-place explanation.—*Ed. Far.*

WHEAT "STARVED TO DEATH."

When attending the Wisconsin State Fair, at Madison, I was riding to the fair ground with several farmers from different parts of the State. They were lamenting their light crops of wheat, and its poor quality. They said, they did not see why, of late years, their crops should be so small, and the grade number two, or rejected, when only a few years since they got twenty to thirty bushels to the acre, and it weighed plump sixty pounds to the bushel. Somehow the season was unfavorable. A gentleman, who proved to be a wheat buyer, spoke up. "I can tell you what the matter is. You starve your wheat to death! You don't feed your land. Your previous crops have taken up all the wheat nourishing elements in the soil. You would not expect an ox or a hog to grow unless you furnished them something to live upon. Neither will your wheat. Feed the soil and it will feed you. Do not burn your straw, waste your manure, take everything off, and put nothing back. Put your land in better condition, by ploughing in clover, making and using more manure, and other fertilizers, and you will get more and better wheat off from less land." Such was the substance of the wheat buyers' remarks, and we think he was right. However unwilling our farmers may be to admit it, there can be no question that our soil is becoming exhausted of its wheat growing elements. Less acres to wheat; more stock and more of a mixed husbandry will save the West. The sooner heeded, the sooner prosperity will again smile at our doors.

Save and apply the fertilizers! Let nothing go to waste that will make a stalk of corn or wheat thrive the better for its application.

Pisciculture—Commissioner Roosevelt's Address.

We had the pleasure to accompany our friend, Mr. Robert B. Roosevelt, Fisheries Commissioner for the State of New York, to Annapolis, and of listening to his admirable address to the two houses of the Maryland Legislature on the subject of fish culture and the improvement of the fisheries of that State. We regret that our crowded columns will not afford space to give this remarkable address entire, or to more than allude to the profuse and refined hospitality with which we were welcomed by our friends of the Maryland Club at Baltimore, and by the Governor in the palatial Government House at Annapolis, but must content ourselves with brief extracts from such portions of the address which refer to shad and black bass, and which are of universal application in all the States South of the Salmon range.

As Maryland is richer than any other State in the fluvial fisheries of shad and herring, the New York Commissioner was listened to with profound attention, and made such an impression as to lead to the hope that the Legislature will take such measures as will restore the ancient and wonderful fecundity of the Maryland waters, and revive that golden age of the epicure, when the workmen in a great industrial establishment belonging to the Hughes family, somewhere near Havre-de-Grace, complained bitterly at being fed in spring and summer on shad and rock fish, and in winter on red heads and canvass backs.

The first question suggested on the subject of fish culture by the practical American mind is, Does it pay? Here is what Mr. Roosevelt says on this head:

A tolerable understanding of the subject has only been obtained of late years, and, we may say, with natural pride, only in this country. Here, and here alone, has this art been brought to the only test worth considering—if it is to be anything more than an amusing relaxation and entertaining study—and that test is, "Does it pay?" The answer to that all-important question has, by the assistance of American energy and ingenuity, been finally and conclusively given in the affirmative. Fish culture does pay as well, if not better, than most occupations. There are quite a number of fish-hatching establishments in full operation, giving, in some instances, a large remuneration to their proprietors; one yielding an annual income of \$10,000, and with a greater demand for fish than it can supply. In 1868, when the first report of the New York Commissioners of Fisheries was made, the following were mentioned, and since that a considerable addition has been made to the number:

SHAD.

We, therefore, come down to the last class, and fortunate it is for our country that in this class we are more favored than any other nation of the world; we have in the shad a fish which surpasses all others in its adaptability to cultivation, and whose numbers can be increased with the least trouble to the most enormous extent. In fecundity, facility of management, and safety from injury, it is everything that can be desired. Trout eggs require from forty to sixty days to hatch; shad eggs will mature in six or seven. The

former need the purest water, clean troughs, constant attention, and abundant room; the latter will do finely in a common soap box floated in the river. Trout fry are rendered helpless by a protuberance as unwieldy as the stomach of a typical alderman or a member of the Fat Men's Association, and remain in this unhappy condition for thirty days; young shad waggle their own way in the world from the day of their birth. Little trout must be fed daily, and yet not enough to foul their troughs, and become voracious as they grow older; shad, either little or big, draw unlimited sustenance from the exhaustless sea. A large trout may contain ten thousand ova, whereas an ordinary shad will produce five times as many. Here are surely advantages enough to satisfy any man who knows what has been done with trout, that a little care and attention will enable us to fill our rivers with just as many shad as we may want.

You have heretofore enjoyed the comfort of abundant fish; it is not many years since shad were sold at the falls of the Potomac for a bit, as it was then called, a-piece. That they have increased in price so extensively of late is your own fault, and if they are not restored to their former condition soon, it will be your fault hereafter.

BASS.

The black bass, which belongs to the *percidae*, is a common fish, exceedingly abundant in the Western and Northern lakes; it is a fine fish, both on the hook and the table, and is well worthy of more general distribution. It breeds freely, and increases rapidly, as it has the excellent judgment to guard its eggs from depredators, instead of following the example of trout in devouring them as soon as they are voided. The best way of treating them is to carry mature fish, which bear confinement well in cold weather, to such ponds as are adapted to their wants, and to leave them to shift for themselves. The various attempts at artificial propagation have not been altogether remunerative, and their natural increase is abundantly sufficient. As they are ferocious in their habits, care must be taken to put them only in waters not already occupied by some valuable breeds, for they will utterly destroy and root out every other kind except the pickerel.

Black bass were lately introduced into the Potomac, where they are now reported to be numerous. They found their way naturally into the Hudson River several years ago, by the opening of the Champlain Canal, and have been acclimated in many of our Northern lakes and ponds.

You have a species of black bass, which I believe is called at the South, or at least in Virginia, a chub. It is as much like a chub in appearance as a herring is like a whale; and the use of such a designation can only be accounted for by the natural perversity of the human mind in relation to names of animals, and which shows itself by calling a perch a salmon on the Susquehanna, and a weakfish a trout in Florida. Our Southern brethren seem to be possessed of a more than ordinary share of this perversity; and if the introduction of fish culture among them should have no other effect than to compel them to call the inhabitants of the water by their Christian names, it would not be labor thrown away.

This black bass, however, whether you call him perch or whale, could be as readily introduced into new waters as his congener of the North, and, although probably not as good eating, is, like most kinds of food, better than none.—*Turf, Field & Farm.*

A Successful "Minkery."

A recent number of the Toronto (Canada) *Globe* contains a description of a "minkery" at Patterson village, Ontario, carried on by Mr. A. P. Conger, foreman of the foundry of Messrs. A. L. & Peter Patterson of that place—which now contains about 90 minks, of which 21 (11 females and 10 males) are adults. We give a condensed extract.—*Ger. Tel.*

An acre of ground on the bank of the Don was enclosed by a close boarding, six or seven feet in height, and now serves as a minkery. No expense has been spared to give the experiment a fair trial; a commodious frame building about 40 feet long by 15 broad has been erected principally for breeding purposes. Along the whole length of the building on each side extended a series of lockers with wire gauze tops, which admits light and air, and permits the keeper to see inside. At the back of each of these lockers are two sleeping apartments, so that if necessary each locker could accommodate two families. In front of each range of lockers is a sewer, connected by a pipe with a well in the west end of the building, by which a plentiful supply of water is kept running, which carries away the exuviae of the animals, and maintains the place in a state of perfect cleanliness. At the back of the lockers, between the two sleeping apartments, is a small grating opening outside, by which the mink can go out and in at their pleasure. When we were there, these gratings were all closed, the females and their young being confined to their apartments, though the males were allowed to roam at large. They are fed on liver, heart, lights and other refuse of cattle, which a butcher in the neighborhood supplies at a dollar per annum per mink. A strange peculiarity of the race is that, instead of sitting down to their meal decently, they will leave one piece after another in their dens, and hang about so long as there is any hope of getting a little more. But when they do begin to eat, they set about it in earnest. They gorge themselves like a boa constrictor if they can get the material and then will go to sleep two or three days at a spell. Nor are they particular to a shade as to the freshness of their provisions. They can be supplied with a week's provisions at a time, and they seem to relish it at the end of the week more than at the beginning, especially if it is considerably putrid. They scarcely, if ever, appear during the day; but enjoy themselves thoroughly at night, in the way of fishing and toad hunting. The fur of the minks is very dark, being all the more valuable on that account, and attains to the greatest state of perfection in December. It is Mr. Conger's idea that the most valuable fur is got from yearlings. From what we saw we are convinced that the experiment is a complete success, and with skins worth four or five dollars each, we are inclined to agree with Mr. Conger, that a "minkery, with a hundred breeding minks, is worth more than any hundred acre farm in Canada."

Horticultural.

The Fruit Garden.

MAY.

Young trees may have vegetables planted in intervening spaces, allowing considerable room, however, about the trees, and having the ground well manured. When the rains of spring and early summer are well over, mulching becomes very necessary for the protection of all newly planted trees and shrubs. The mulch may be of straw or coarse litter of any sort, laid on to the depth of three or four inches, and to the distance of four feet from the stem.

Strawberries will be growing rapidly and ripening and need abundant moisture. The only practicable way of ensuring this is to mulch them well while the ground is quite moist. Moisture enough while filling and ripening a rich soil, and room between the plants, are the chief requisites for a full crop.

The Flower Garden.

Early sown annuals that have made sufficient growth may be planted whenever fit, and seeds may still be sown.

Bedding Plants of the several sorts may be put into the beds by the 15th of the month, and in the mean time should be hardened by exposure to the air at all times, unless there be danger of frost, or long cold spells. Scarlet-flowering and other *Geraniums*, *Verbenas*, *Salvias*, *Heliotropes*, *Petunias*, &c. are suitable.

Take cuttings of *Geraniums* and put in small pots under glass for fall blooming.

Lawns and Walks.—Keep walks clear of grass and well packed. Mow lawns early, keeping the grass at all times short and fine. If bare places or coarse grasses appear, manure with fine compost or ashes; and an occasional dressing of salt will benefit it.

Winter Pears.

The following extracts of a letter from Marshall P. Wilder, President of the American Pomological Society, and, as a correspondent remarks, "the highest authority on pear culture," will be read with interest by our fruit-raising readers:

"I notice the allusion to myself in connection with the article on Winter Pears in the Cultivator and Country Gentleman of Feb. 17th. In regard to the *Beurre d'Anjou*, I have nothing to retract. Its merits increase in my estimation every year. In fact, its use extends over many months. It may be ripened in October by being placed in a temperature of 60°, or it may be kept to this date (Feb. 19th) in perfection, no other conditions being necessary than those of a cool, dry, north cellar, free from frost. Such also is the opinion of Messrs. Ellwanger & Barry, who have just visited me, who also had them in fine order when they left home a few days since.—Whether for my own table or for market, I have no variety that surpasses it, if size and excellence are considered; and so generally is it now sought for both in this market and New York, that my crop is always engaged

before the time for gathering. The *d'Anjou* sells in New York readily for twenty-five dollars per barrel, as they come from the trees without selection, and in Boston at this time commands twelve dollars a box of less than a bushel—and excellent and refreshing as the *Easter Beurre* are from California, my *Anjous* are in as perfect condition and have kept as well as those.

"In view of these facts, the Massachusetts Horticultural Society have placed the *Beurre d'Anjou* on the list of winter pears.

"I have written more than I intended, but cannot close without a word for the *Vicar of Winkfield*, for which I have so often been called to account. When, thirty years ago, I replied to the inquiry of Mr. Downing, 'if you could have but one pear, what would you name?' I said, *Vicar of Winkfield*—now I should answer *Beurre d'Anjou*. But let us see after this lapse of time, where my ancient favorite now stands in the estimation of competent judges. All will agree that as a vigorous, symmetrical, hardy tree, few can equal the *Vicar*. Its fruit is constant, persistent, and so abundant as to require regular thinning of the crop. It is large enough to bake by the first of September, and I have kept them until the 18th of April in the same building where the *Beurre d'Anjou*s referred to above were stored, that is, a common cold cellar. Now for the quality of the fruit. Mr. Charles Downing says no pear surpasses the *Vicar* for culinary purposes, and so say I. But as an eating or dessert variety, how is it? The best specimens with colored cheeks, are always of excellent quality, and should be satisfactory to all; and the balance will find a good market with the million who are not so difficult to please. But to conclude—when I gave my approbation of the *Vicar*, few of the leading cultivators agreed with me, but soon the late Samuel Walker, Capt. Lovett, and others now gone, concurred in my estimate of this variety. And now, after thirty years, on the 13th day of February, in the year of our Lord 1870, at the meeting of the Massachusetts Horticultural Club, we had the concurrent opinion of such men as Hovey, Cabot, Manning, Stickney, and other eminent cultivators, that the opinion entertained by your humble servant, of the old *Vicar*, was not far from being correct—none, however, ranking its quality with the *Anjou*, but all agreeing that it was still one of our most valuable varieties."

We may add that so commonly is the *Vicar* allowed to overbear, according to our observations through the country, that its real flavor is scarcely ever developed, and hence the low estimation in which many hold it. Even when thinned, so great is its productiveness, that there is scarcely a variety that will produce half as much per tree on the long run.

Talk About Pears.

[By Mr. P. BARRY, of Rochester, at the meeting of the Illinois State Horticultural Society.]

It is said that pear culture is a failure. But this is not so. It has been a success. That some should fail to grow this fruit profitably, is no more strange than that some should fail in mercantile, mechanical or other pursuits, and it no more proves that pear culture is a

failure, than that every other pursuit in life is a failure, because some always fail of success.

We now find thousands of barrels of pears in our markets where tens were found a few years ago. Somebody is successfully growing pears. I know of one orchard of 16,000 trees!

Success in pear culture depends upon the following conditions:

1st. *The Soil.*—I have seen good crops on sandy soils that were light enough to blow away, and upon clay soil heavy enough to make brick. In garden culture, we can take any soil and make it what we want it. But the soil best adapted to pear culture is a deep sandy and gravelly soil, with a clay subsoil. It must be dry. A soil may be sufficiently dry, but not suitable for fruit. Few soils, however, are good for fruit without drainage. Drainage is therefore one of the essentials.

The second requisite is *Shelter*. This will apply to all parts of the country. The exposure to the winds has a damaging effect all the way from the time of blossoming till the fruit is gathered. In large orchards shelter belts should extend through as well as around the orchard.

Third requisite is *Pruning*. It is common to see all the vigorous shoots at the top of the tree. Now, this may all be regulated by timely and judicious pruning. Summer pruning is an important part of the work.

4th. *Thinning* the fruit is an important consideration, and must not be overlooked if we would maintain the fruitfulness of the orchard and produce the best results. The later varieties require thinning more especially, and for the want of it would suffer more than the summer varieties that are sooner relieved of their burden. The time of thinning is when they are the size of hickory nuts or less. The precise time when it is best to thin can only be ascertained by experience.

5th. *Gathering the Fruit.*—Pears must not ripen on the tree. Some varieties require to be taken from the tree earlier than others. The *Flemish Beauty*, *Bartlett* and *Clapp's Favorite*, may be gathered when scarcely more than half grown. The common rule given is, when the stem will part from the twig easily. This is not a safe rule. Experience only can indicate the time to gather.—Pears on the lower branches will lighten first. Great care must be taken not to break the stem; if this is broken, the pear is ruined. Winter varieties may be left on the tree until the leaves lose their vigor and fall.

6th. *Marketing.*—The best package is the half barrel. Select clean barrels and pack carefully; shake the barrel in packing, so that each pear may settle down in its place, from which it may not remove. If your pears are nearly ripe, they will carry better in boxes. It is believed by some that pears cannot be shipped at long distances. We know that pears are now shipped from California to N. York and Boston, and come in good order.

7th. *Assorting.*—The shipper will find it to his interest to assort his fruit. Buyers are not deceived by the beautiful exterior covering rottenness below, but once. Here "honesty is the best policy."

8th. *Varieties.*—The most popular varieties are the *Bartlett*, as standard, and the *Duchesse*, as dwarf. This, understand, is not *my* arrangement—(other varieties were named in their order of popularity)—but I have read the list in the order of their popularity. The *Beurre d'Anjou* is the most popular late pear, and the *Lawrence* the next most popular variety. The *Howell* was scarcely inferior to the best. The *Winter Nelis* sells well on account of good quality. The *Easter Beurre* is really the best of all, but does not succeed well in every place. It has a tendency to overbear.—*Co. Gent.*

Stock.

For the "American Farmer."

Best Breeds of Cattle.

The prevailing high prices of butter, cheese, and meats of all kinds, with the urgent demand for consumption, call loudly upon the agricultural population of the country to give their attention, scientifically and practically, to the breeding and rearing of cattle. The cost of keeping poor stock is as great as that of good, while the net proceeds, and the satisfaction arising from good stock, is incomparable greater than that of poor.

It is a self-evident proposition, that what is worth doing at all is worth doing well, consequently, if it is profitable to rear and keep live stock for these purposes, it would be the most profitable to procure the best breed, for the use designed, and give them the best possible care.

That distinguished writer, Flint, on *Milk Cows and Dairy Farming*, says: "The object of dairies is three-fold. In selecting any breed, therefore, regard should be had to the circumstances of the object to be pursued. The cow most profitable for the milk dairy may be very unprofitable in the butter and cheese dairy, as well as for the produce of beef; while for either of the latter objects the cow which gave the largest quantity of milk might prove very unprofitable. It is desirable to secure a union and harmony of all good qualities, so far as possible; and the farmer wants a cow that will milk well for some years, and then, when dry, fatten readily, and sell to the butcher for the highest price; these qualities, though often supposed to be incompatible, will be found to be united in some breeds to a greater extent than in any others; while some peculiarities of form have been found, by observation, to be better adapted to the production of milk and beef than others."

The *American Stock Journal* states that Mr. Ross Winans, of Baltimore, Md., who keeps a large stock of cows, and sells the milk in the city, enthusiastically holds to the Durham or short horn breed of cattle for the production of milk for his purposes of sale. They are purchased by him in Kentucky and Ohio. He buys three year old heifers in calf for the first time, which is the cheapest and readiest mode of keeping up any considerable number of first class dairy cows. He says three years is the best age to bring a heifer into milking. Her growth at that period has not been checked by calving, and is such as to develop more fully the milk-producing organs of the animal, and if this process is assisted and urged forward by high feeding, it lays a surer foundation for the future excellence of the cow.

The strongly developed milking qualities of any particular strain of cows, are artificially produced by careful breeding, *only from such a strain*, both in the cow and bull, as will secure this result, and also with suitable feed and care. It is claimed by many, that as a milk and dairy producing cow, properly bred, and educated for that object the Durham has no superior.

The Ayrshire is another well established breed which has been frequently imported

into this country from Ayrshire, in the southwestern part of Scotland. These cows have long been distinguished for their remarkable dairy qualities, and for the quantity of milk they give in proportion to the size of the animal and the amount of food consumed. The Ayrshire is generally a good handler, her skin thin, her hair soft, her whole figure compact and well proportioned. The udder is large, square, broad, extending well forward, not over fleshy, too low hung, nor too loose. The milk veins are large and prominent, the teats pointing outwards, and set well apart.

The Ayrshire makes a good cross with the common stock of the country, and with the Durham. The cross with the Alderney is not to be encouraged, because it tends to small cattle. As to the annual returns of Ayrshire cows in dairy produce, Professor Low says: "Healthy cows, in good pasture, give from eight hundred to nine hundred gallons of milk in a year." Martin says: "The milk of a good Ayrshire cow will afford two hundred and fifty pounds of butter, or five hundred pounds of cheese annually." Wolcott and Campbell, New York Mills, N. Y., have a large herd of imported Ayrshires, consisting of sixty-one cows and heifers and sixteen bulls and calves, making a total of seventy-seven head.

The Alderney cow is attracting considerable notice on account of the richness of its milk, and peculiar adaptation to butter-making purposes. The Alderney is by no means remarkable for the quantity of milk she gives, but she holds out better than most other classes of dairy cows, and gives a quality of milk which sends up rapidly, under favorable circumstances, a large proportion of rich, thick, yellow cream, that makes a delicious butter. For the purposes of the butter dairy, the Alderney is very superior for her size, and the quantity of milk produced.

The Alderney was introduced into this country about thirty years ago, came from the Channel Islands, off the coast of France, but belonging to Great Britain. In the *American Stock Journal* there is a statement of an Alderney cow, owned by Mr. B. McFarlane, Delaware county, N. York, from which 546½ pounds of butter was made in ten months. The average yield of milk was thirteen quarts per day.

Mr. Geo. Ayrault, of Poughkeepsie, N. Y., recently sold to William Lalor, of New York City, four steers, bred and fed by himself, said to have been the finest and heaviest beeves sold in any market in this country, for the sum of eight hundred dollars per head. The lightest weighed 3,300 pounds, and the heaviest pair weighing from 300 to 400 more than the recorded weight of any pair of fat cattle known. One of them was seven years old; the others six years respectively. They were about seven-eighths Durham blood.

Elmira, N. Y.

I. V. MAPES.

From the Southern Cultivator.

Bots in Horses.

BY DR. WM. ABRAM LOVE, ALBANY, GA.

[CONCLUDED.]

To answer all, or most of the indications in the majority of cases of supposed grubs or colic, the following compound will be found effectual as a general prescription, and farm-

ers and stock owners, who keep a supply of the medicines on hand for emergencies, will have no occasion to regret it, as by its timely use they may save many valuable horses and mules during a season.

Take of chloroform one ounce, laudanum one ounce, tincture of assafetida, one ounce—mix. Give it in a pint and a half or a quart of thin syrup, well shaken together. When the horse will eat or drink, give him gruel freely, and follow the dose, in a few hours, with a brisk cathartic of salts. Glauber salts (sulph. soda) is, perhaps, the best, from its anti-acid and anti-septic properties, though Epsom salts, or any other convenient cathartic, will answer the purpose, the object being to remove the destroyed grubs, preventing lodgment in the valves of the bowels, where they would produce irritation and inflammation. The saline cathartics answer, as a general rule, a better purpose, as they are febrifuge and reduce the irritation and febrile action in the stomach, bowels and general system.

Some writers contend that grubs do no harm to horses, within certain periods of their existence. This is true, but there is a time when they are seriously detrimental, if not certainly fatal. By following them through one generation that time may be seen to the satisfaction of the most skeptical. Like most of the insect tribe, they have four distinct stages of existence—the egg, the grub, the chrysalis and the perfect fly.

The grub fly, or (as it is known in the South) *nit fly*, deposits its eggs, by preference, under the chin of the horse, but being defeated in this by the instinctive restlessness of the animal, it glues them to the hair on the fore legs or breast, or on the mane. Sooner or later, by the greater or less heat of the body of the animal, the larvæ are hatched, when they start immediately in search of food—(this larvæ, though very minute, is but a diminutive grub, armed with a piercer in the tail—the two lateral curved and pointed *grapples*, with the successive rings of the same kind as described above, all perfect.) Fastening or hooking these into the hair, *they travel backwards* (as do some other species of grubs) until they reach the skin of the animal.—Their efforts to penetrate this produces an itching sensation; the horse scratches them off with the upper teeth—they are caught on the lips, to the mucous-membrane of which they fasten themselves and feed on the mucous secretions; otherwise they perish. Becoming mixed with the food, they are conveyed into the stomach. Here they subsist on the gastric juice, (chylipoetic and pancreatic fluids, and mucous secretions, *until they are full grown grubs*, or reach the age of maturity. Up to this period, they do not materially interfere with the health or comfort of the horse, inasmuch as they are well supplied with food from the contents of the stomach and the visceral secretions. But when they have reached this mature age, they cease to feed and cease to grow, and, like grubs or worms of other insects—as the silk worm, the grass worm, and the various other moth beetles and fly tribes become dormant after fastening themselves, and enter the chrysalid stage—so to speak—preparatory to coming out perfect flies. Just at this stage they become dangerous. It is as natural for them to *fix* or *bury* themselves

when they have finished feeding and are going into their dormant state, as it is for the silk worm to spin its cocoon, the cotton worm to wind itself in a leaf, or the grass worm to bury itself in the earth, or beneath some object, where, undisturbed, it can pass the chrysalis state and come out in its perfect state a moth. It is not in feeding, (though the grub is carnivorous,) but in seeking this resting place, this grave, as it were, that they injure the stomach.

By an instinctive common consent, all of mature age, at the same time, go about this work; by collecting into colonies and fastening themselves close together, they mutually aid each other in the work of penetrating the stomach or other tissues. The younger grubs, hatched from a different deposit of eggs, do not join with those of mature age, but bide their time. When this fixing or burrowing commences, the horse gives signs of pain, and, if their work goes on, it will surely prove fatal, sooner or later, as the grubs may be in greater or less numbers. Should there be but few, and the animal be able to withstand them, after a given period they hatch—a wingless gad fly is the product. This passes with the defecated foecal matter, when, by exposure to the air and the solar rays, its wings are rapidly produced, as in the horse and other flies. The perfect gad-fly is thus generated, male and female. In this stage they copulate, after which the male dies, and the female goes on her work of depositing her eggs, from two to three hundred or more, instinctively seeking a place where the larvæ can be nourished with proper food.

Thus tracing the history of one generation, which is the history of every generation, we readily see why some have concluded that bots do no harm. They have been found in horses dying from other causes, or killed in good health, where no signs of injury by them could be detected. They had not reached, in such cases, that age when they were about to change to the chrysalis stage, for it is here, and here only, that they are injurious to any material extent. When they are fastening themselves, or burying themselves, to change to the perfect fly, they do their evil work, but failing to fasten, they pass off, doing no injury. They live on animal fluid; are fond of the sweet taste of pus. When the eggs are deposited on the cow, the larvæ sometimes burrow into the punctures made by the black cow fly. In this position, still working till foremost, they, from the irritation produced by the motion of their sharp grapples, generate pus, more than enough, at times, for their own consumption, and it terminates apparently in a boil. From this they hatch the perfect fly. In the rabbit the larvæ are able to penetrate the tender skin, where, in the same manner, they generate their own food by irritation. In the nostrils of sheep they are also very troublesome, and their work is sometimes mistaken for distemper, &c. Naturalists claim that these are all different species of *estrus*. Be that as it may, their habits, their form, their anatomy, and their natural histories, are the same with this difference: that one gains admission into the natural cavity, whilst the other finds or makes an artificial one.

The writer has known one case where the larvæ made its way into the face of a man,

(perhaps entering through the excretory orifice, or duct of a sebaceous gland,) producing irritation, which was at first supposed to be a carbuncle. The man contended very strenuously that there was "something alive in it." This partook so much of the character of Voodooism, (as we find it in these latter days,) that it was treated as a joke, until medical aid was called, when an incision revealed a nearly full grown "wolfe"—a regular gad-fly grub.

Whether, in this case, the fly deposited its eggs on the whiskers, or the man, in working with his horses, accidentally had the larvæ transferred to his face, was a question not to be decided. It was on the right lower jaw, and was very painful.

This much on the subject of bots. These observations, many of them, were made nearly one-fourth of a century since, and the conclusions drawn apace with them. The writer has seen no reason to change his opinions here expressed, after over twenty years' investigation. If they are worth the attention of your readers, and any should chance to profit by them, he will be amply repaid for the little time spent in throwing them thus loosely together for the benefit of the curious or the interested.

The Dairy.

The Milk Mirror.

A correspondent of the *Prairie Farmer*, who has made buying and selling milch cows a specialty, approves the treatise of M. Guenon, and says, I am free to state that the information gained from that book has been worth hundreds of dollars to me in my business. It will enable one to form an opinion as soon as the calf is born, whether that calf will be of value for milk purposes or not. If the calf has four good teats besides the two false ones—I have seen four false ones—with a streak of fine soft hair extending the length of the udder, said calf will certainly make an average milch cow, and stand a good chance of making an extra good one. In stock noted for milking qualities the male will show the same signs.

"In purchasing beef cattle I have oftentimes bought promising heifers and cows at a discount for beef, which were worth to me far more for milking purposes.

"Dry cows and heifers always show the milk mirror and false teats if they have them, while the shape of the bag, etc., must await development. I do not wish to intimate that all good cows must have the milk mirror by any means, but I do state that I make it a rule to select from my droves those that have milk mirrors for dairy purposes, and those for beef which have none. I have sold many a cow to private families on trial, warranted to give satisfaction, and have never had one returned that had a good milk mirror and was gentle.

"In my cheese dairy, which varies from ten to thirty cows, those with well developed milk mirrors are the best; in fact I have never seen a poor milker with a large, perfect, well developed milk mirror, corresponding with Francis M. Guenon's marks, unless said cow was sadly out of condition. My rules for choosing a good cow are:

"1st. A good, strong constitution; showing thrift, a hearty feeder, with the ability to digest whatever food she may choose, or can get to eat.

"2d. Fine limbs with light head, horns and neck; straight back; light, slim tail, with heavy hind quarters, making a wedge-shaped animal, with a thick, soft, movable hide.

"3d. The milk mirror, which should show not less than two false teats, with a wide streak of fine, soft hair, running from the bag upwards to the tail.

"4th. A kind, gentle disposition, with plenty of life, bright eyes, playful and active—still not vicious. Let me say here that vicious cows are mostly made so by bad treatment.

"5th. The bag should pitch forward, holding the same position to the body that a single shovel plough does to the beam.

"I have never seen a fleshy bag of this description—and when the milk is clean drawn from it, it will be as soft and pliable as a well worn dish-cloth just wrung out. The smaller the bag is after milking the better. The milk veins should run as far forward as possible. The larger the orifice in the teats the better. This can be felt in heifers before they commence to give milk."

Dairying in California.

Our San Francisco correspondence, published in the *Morning Herald* of the 20th, contains some interesting facts and statistics about dairying in California. It states that there are 1,500 dairies in California, having 50 to 150 cows each. The cows are generally a cross of imported with Mexican stock. They pick their own feed from the 1st day of January to the 31st day of December. Good grazing lands are cheap and abundant. The Coast Range mountains extend from Mendocino to San Diego, upwards of six hundred miles. Bathed by the frequent fogs of the ocean, there is plenty of moisture when all elsewhere is dry. This range of mountains possesses valleys of great extent and fertility. It is full of springs, while bunch grapes and wild oats are found in exhaustless quantities. This is, therefore, of course, a fine section for the dairy business, as the land is also very cheap.

In 1867, California produced 6,000,000 pounds of butter and 3,000,000 pounds of cheese. This year the product is estimated at 8,000,000 pounds of butter, and 4,000,000 pounds of cheese. Owing to the dryness of the climate cheese cures very rapidly. The rennets used by the cheese-makers are imported from Germany.

Our correspondent gives the product of Laird & Kellogg's dairy of 400 cows, this year, in Santa Cruz county. The milk of 200 was used for butter, and that of the other 200 for cheese. The cows milked for butter turned out 20,000 pounds, which was sold at an average price of 45 cents, amounting to \$9,000. The cows milked for cheese produced 90,000 pounds, which was sold at 16 cents, amounting to \$14,400, making the gross returns of the 400 cows \$23,400 besides the calves raised and the pork produced from the whey. The cows are worth on an average \$40 each.

Our correspondent adds, that "there are millions and millions of acres of unoccupied land in this State, with every possible facility for the dairy business." So it appears quite certain that California will produce her own butter and cheese, and may become a rival of the Eastern States in the markets of the world.

The American Farmer.

Baltimore, May 1, 1870.

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Interesting Experiment.

Lawrence Sangston, Esq., President of the Maryland Fertilizing Co., has sent to the State Agricultural College, for experiment, 500 lbs. of "Plant Food," manufactured by his Company, and a bag of the best cotton seed, obtained from David Dickson, Esq., of Sparta, Ga., for the purpose of experiment.

In the last year's experience with this fertilizer, it was indicated by a number of certificates from cotton growing States, that the application of this fertilizer made a difference of three to four weeks in the maturity of the cotton fertilized with it. It is assumed that if this result shall be found to continue, it will be one of very great interest in its immediate effects in the cotton growing region, and will tend to extend largely the area within which the plant may be profitably cultivated. Four weeks added to the cotton season on the light lands of Southern Maryland, might enable the proprietors to add this profitable staple to the list of their productions. It is within the memory of many Maryland people, when the cotton patch was one of the adjuncts of the homestead, and the feature may be renewed under auspices more favourable to its permanency. Between Maryland and the cotton region proper, there is ample room for the experiment, with constantly increasing prospect of success as we go South.

The purpose of the experiment which Mr. Sangston proposes to have made, is to test this quality of the fertilizer. Its application and its good effects will not be limited to cotton, but may be extended to tobacco, early potatoes, and whatever early maturity may be desired for. The suggestion is based on the singular and unlooked for unanimity of the certificates of cotton planters last year in far distant sections, as to its effect on their several crops.

CHEAP CARPETS, MATTINGS, &c. are advertised by Mr. A. Nachman, 159 N. Gay street, Baltimore. We have had business with Mr. Nachman and found him to be reliable. His goods are not only low priced but *cheap*.

Persons living in the country can safely send their orders to 159 N. Gay street.

The Manure Crop.

Some young farmer will distinguish himself before long, perhaps, by making more manure in a year, from a given material, than has ever been made before. He will make the manure crop his specialty, as others do with wheat or tobacco, and becoming very successful in the quantity and quality of his crop, will come to be the great farmer of his day. Here is a path open for some ambitious young man, which has not yet been tried. Who will make the largest manure crop, the coming year, and what will he do with it?

There are several questions of great importance, bearing on the topic of manure making, which are far from having had a satisfactory solution. How it should be applied? Whether on the surface, mixed with the worked soil, or well turned under? On what crops should it be expended? On grass, that the land improvement should be the point first looked to, or on some principal crop, the specialty of the farm?

One of the most interesting of such questions is as to the condition in which it should go upon the land. In old days, long past, it was thought universally perhaps, that manure was no manure until it had passed through a long stage of preparation. This was when it was all used up, we suppose, by gardeners, and gardeners have now, perhaps, about the same opinion; that it is only well made composts that can serve their turn. Of late years, a notion has prevailed on the farm, that there was waste suffered in the diminution of bulk as the pile decomposes, and that it is better to have the decomposition take place in the soil; at any rate there was time saved in getting the manure on fresh. Hence it got to be current advice to put the material of every sort on the land whenever practicable, and "let the muck and the land settle it." This was a summary way of disposing of the matter, but it has not altogether settled the question. Is this the best way of disposing of the manure? We very much doubt it, but we are like very many others—we have never fairly tested the matter.

At one of those meetings of practical farmers where such topics are often talked over with profit, we find this opinion expressed: "The next speaker did not believe in applying fresh manure, because he did not believe that the excrements from a horse or cow, when first dropped, possessed the fertilizing properties which they afterwards obtained. He said, he thought they could hardly be regarded as manure, in the proper sense of the word, till after they had gone through a process of decomposition. In this fresh, raw state, they did not furnish the food which plants required. He believed that before they could do this, they must go through some such process as took place under cover, during the season. The manure made in the winter, if properly cured, would be thoroughly fitted for use after haying time."

It will be remarked that this speaker, like all others who treated the subject, only said what he *thought*—it was his opinion that the case was so. No proof was given, nor was there an indication that he had made any definite trial of it. We have this same sort of opinion; but we cannot back it up by

proofs. We must take it for our guide, however, and intending to make the very most of the material at command, to make the very biggest crop of manure—we shall take special care to have excrement and voidings of every description preserved by absorption, using straw, cut corn stalks, and especially dry clay, in stalls, and wherever manure drops under cover. These materials will keep the floors thoroughly dry and clean, just in proportion as they absorb the fertilizing elements, and so at the same time, two most important ends will be gained. Then all should be kept under cover if practicable, or piled in very compact heaps, the larger the better, for six months at least. These heaps must have moisture enough—must be watered if necessary. Horse manure especially must be guarded against *fire fang*, by occasionally watering or mixing, and all must be tended, cared for and looked after, as a manufacturing chemist looks after what is with him a primary not a secondary business.

HILL MANURING.

If the earth be by chance washed away from the roots of growing corn, and the wonderful net-work exposed to view, traversing every inch of space from row to row, we conclude it to be a very absurd thing to manure the crop by putting a spoonful of some fertilizer at certain points four feet apart.—Whether these points were just where the corn was planted, or somewhere else, would seem to make no manner of difference. What good reason can there be for selecting one point in preference to another, when every one seems equally occupied by the busy feeders, or is there not indeed, more show of reason for putting it anywhere than just those points from which the feeders diverge in search of food? In hill manuring we put the fertilizer just where the roots make haste to go away from.

Yet who can say that we should not manure in or on the hill. A single fact upsets our wisest reasoning on such a matter. We plant a field of corn on well worked and well manured ground, as we saw last season, and through the field, on several rows, a small handful of a prepared fertilizer is distributed to every three hills. In ten days the rows thus treated showed a darker color, then a strong, broad, flat stalk, then it shot up in advance of those on each side, tasselled and showed the silk about ten days sooner, ripened as much earlier, and made perhaps twenty-five per cent. more corn.

We give another fact. A correspondent of this journal writes: "The past season, my corn field of eleven acres, was meadow sward, turned over a few days before planting, and all manured alike with common farm-yard manure; the soil, all rich gravelly loam, that for two years previous had averaged at least two tons of hay to the acre. I am thus particular for the reason that I would show sufficient strength to grow some corn without the aid of foreign fertilizers and fully equal to the average corn land of the State. Four rows running north and south through the centre of the field, were planted at the same time and under the same circumstances as the remainder of the field, minus the application to each hill before planting of a compost of hen

manure, plaster and ashes. From these four rows I harvested $6\frac{1}{2}$ bushels of corn or a trifle over $1\frac{1}{2}$ bushels to the row. From the four rows immediately adjoining, I husked $12\frac{1}{2}$ bushels of sound corn, in both instances being nearly equal. I am aware that this proves a difference hardly credible; and yet the facts warrant me in saying that I nearly doubled my yield of corn by applying merely a table spoonful of the above to each hill; for so trifling expense and labour, reaping large reward indeed."

In both of these cases it is to be noticed that the ground was, what would be usually thought, well manured otherwise, and the hill dressing, it may be presumed, so invigorated the plants, as to enable them to receive full benefit from the outside manuring. So we would reason; but it seems all nonsense to reason at all about facts that are themselves so unreasonable—that is, to our way of thinking. We learn in this, as in so many cases, how unwise it is to follow our best devised theories and hypotheses, and how much more safely the farmer operates who watches carefully the facts that present themselves and makes them the guide to his practice.

In making up our agricultural science, the practical man has just this part of the work to do—treasure the facts that present themselves and stand by them in preference to the most cunningly devised theories. By and by these stubborn facts make their impression, and out of them are evolved principles, which shed a broad and a safe light.

The State Agricultural College.

ANNUAL MEETING OF THE STOCKHOLDERS—REPORT OF THE PRESIDENT.

The stockholders of the Maryland Agricultural College held their annual meeting Wednesday, April 20, at the office of Messrs. John Merryman & Co., Fayette street, near Charles. Mr. J. Howard McHenry was called to the chair, when the following trustees were elected—Messrs. A. B. Davis, C. B. Calvert, Dr. E. J. Henkle, Allen Dodge, John C. Walsh, James T. Earle and J. Howard McHenry. There were thirty-five hundred votes represented at the meeting. The Hon. Allen Bowie Davis, President of the Board of Trustees, submitted the annual report of the President of the Faculty, Rev. Samuel Register, which he said he adopted as his report of the financial condition of the college. The whole amount of indebtedness of the institution at the date of Admiral Buchanan's resignation, as nearly as can be ascertained, was \$6,150.78. Of this amount, \$5,037.40 have been paid, leaving a balance of \$1,113.38. This balance includes the "Libby judgment" of \$587.61, which we will pay on demand. The following amounts have been paid for improvements and repairs to the property: New gas works, \$600; new gas-house, \$219.28; gas fitter's bill, \$179.42; repairs to roof of college, \$44.45; repairs to pump, &c., \$37.70; repairs at cottage, \$55.93; new stove and pipes in wash-house, \$28; repairs to furnace, &c., \$29.25; locks and keys for students' rooms, \$135.40; repairing clock, \$5; repairing iron bedsteads, \$31—making a total of \$1,365.43. These improvements are solid and will last for many years, so that no similar expense will be required for a long

time. The iron bedsteads now ready for use will accommodate twenty-five or thirty additional students.

There was paid for additional stock of books, &c., for students, chemicals, table ware, settees and chairs, and bedding, the sum of \$1,025.70, showing a total payment for the foregoing accounts of \$7,428.53, including \$5,037.40 for old debts and \$1,865.43 for improvements, &c. These were debts paid independent of the current necessary and ordinary expenses, all of which have been or will be promptly paid. The following is an exhibit of the ascertained and estimated liabilities and resources up to July 1st, proximo. The liabilities were: Balance of old debts, \$1,113.38; due "students' fund," \$800; due for glass and glazier's services, \$25; due Messrs. Wood & Co., for stoves, \$168.46; due Mr. Sheriff, for coal, \$180; due for books, \$26.89; due president's salary, \$1,000; due four professors' salaries, \$2,000; due Major Soper's salary, \$75; due registrar's salary, \$230.54; due employees to July 1, \$603; estimate for coal to July 1, \$130; estimate for bread to July 1, \$500; estimate for groceries &c., \$1,413.61—total liabilities, \$8,262.87.

The resources up to July 1 were: Due from students, \$1,410.82; due for board of families of president and professors, \$807.50; due from State donation, \$6,000; due from rents, \$99.32; cash on hand and in bank, \$949.39—total of resources, \$9,266.53; liabilities, \$8,265.87; balance, \$1,000.66.

The above shows a balance in favor of the college, over all descriptions of liabilities, amounting to \$1,003.66. The report adds that revenues of the college, under a proper and economical administration of its affairs, (assuming that an equal number of students shall be in attendance,) will exceed the ordinary expenditures by from five to six thousand dollars annually. There are ninety-six students on roll, and it is expected the number will exceed a hundred in a short time. The report was adopted and the meeting adjourned.

✂ We have received from the "Seed King," Mr. Jas. Vick, Rochester, N. Y., a selection of choice flower and vegetable seed. Those of our readers who have not procured a copy of "Vick's Floral Guide for 1870" should do so at once. Every Amateur Gardener should have a Floral Guide, and there are none better than Vick's.

The edition for 1870 contains a picture of this enterprising and successful seedsman.—Send 10 cents and get one in time.

✂ We are indebted to the Mechanics and Agr'l Fair Association of La. for invitation to the Fourth Annual State Fair held at New Orleans 23d April, 1870.

Book Table.

Among our exchanges for April the following are of special interest:

Manufacturer and Builder, New York.
Arthur's Home Magazine, Philadelphia.
Children's Hour, Philadelphia.
Little Corporal, Chicago, Ill.
Old Dominion, Richmond, Va.
Medical Journal, Baltimore.
Hitchcock's Musical Magazine, New York.
Brainard's Musical World, Cleveland, Ohio.

Descriptive Catalogues—No. 1, Fruit Department, and No. 2, Ornamental Department—of the Munroe Nurseries, Rochester, N. York. J. Wentz, Proprietor.

Real Estate Record—a Guide to Land Buyers—by Wm. H. Newton & Co., Baltimore.

Hand Book of Husbandry—by E. Waring, Jr.; published by E. B. Treat & Co., N. York. This is a practical book for practical farmers, and one likely to find a ready sale among those who want practical information about husbandry.

Purdy's Small Fruit Instructor, by A. M. Purdy, Palmyra, N. Y., is a really useful publication. Price 25 cents. We will send it as a premium to any one sending us the names of two new subscribers, with the money.

The "Ohio Convention Reporter," (\$1.50 a year,) reports proceedings of all conventions held in Ohio. The April number contains reports of S. O. Dist. Agricultural Convention.

"The Bible in the Public Schools," embracing opinions of individuals and of the Press on both sides of the question. J. W. Schermerhorn & Co., New York.

"Sports and Games,"—a quarterly magazine of amusement. 25 cents a year. Adams & Co., Boston.

From Mr. James Waters, No. 8 Charles street, Baltimore, a neatly bound copy of *"Henry Courtland, or What a Farmer Can Do."* Published by J. B. Lippincott & Co., Philadelphia. Price \$1.75.

"Advertisers' Gazette," by Geo. P. Rowell & Co., Advertising Agents, New York, contains information of great value to advertisers.—Published quarterly.

"Hudson & Menet's Annual for 1870" has a full list of all newspapers published in the United States and Canada, besides a very comprehensive list of the principal foreign papers. Address Hudson & Menet, Advertising Agents, 41 Park Row, New York.

Earth Closets.

The subject of Earth Closets has attracted much attention of late, both here and elsewhere. The time is not far distant when this new system will entirely supersede the old-fashioned convenience, on account of both utility and cheapness. Many prominent Marylanders have adopted the system and have testified to its great superiority over the old. We recommend its use, as a matter of convenience, to everybody, but especially to *Farmers*, as it is literally a *fertilizing machine*, which will soon pay for itself. The mechanical parts are constructed for both in and outdoor use. See advertisement. Messrs. W. A. Bryant & Co., Agents in Baltimore, will furnish descriptive circulars to applicants.

✂ For first class, useful premiums, see the regular and special premium list on another page.

Sunday Reading.

We must apprehend the merits of Christ's death, and passion, *by Faith*; and that with a strong and steadfast faith, nothing doubting, but that Christ, by His one oblation and offering of Himself upon the Cross, hath taken away our sins, and hath restored us again unto God's favor, so fully and perfectly, that no other sacrifice for sin shall hereafter be requisite, or needful, in all the world. Let us steadfastly behold Christ crucified with the eyes of our heart. Let us only trust to be saved by His death and passion, and to have our sins clean washed away in his most precious blood; that in the end of the world . . . He may receive us into His heavenly kingdom . . . there to be partakers of that everlasting life, which He hath purchased unto us, by virtue of His bloody wounds.

Divine glory shone in that face on the Mount, but not so brightly as on Mount Calvary; this was the more glorious transfiguration of the two. Though all the light in the world, in the sun and stars, were collected together into one stupendous mass of light, it would be but darkness, to the glory of this seemingly dark and melancholy object. Here shines spotless *Justice*, incomprehensible *Wisdom*, and infinite *Love*, all at once. None of them darkens or eclipses the other; every one of them gives a lustre to the rest. They mingle their beams, and shine with united eternal splendour; the just Judge, the merciful Father, and the wise Governor. No other object gives such a display of these perfections; yea, all the objects we know, give not such a display of any one of them. Nowhere does Justice appear so awful, Mercy so amiable, or Wisdom so profound.

I believe, O crucified Love, that Thou wast really dead, and that there was a separation of Thy body and soul; and that Thy sacred body was buried, to assure us of Thy death. All love, all glory, be to Thee! By the love of Thy cross, dear Jesu, I live; in that I will only glory; that, above all things, will I study; that, before all things, will I value. And if my love calls me to it, I will suffer on the cross for Thee, as Thou hast done for me, compassionate Jesu!

Habent divitiae pauperes. Wealth, too, can produce its poor. Wisely hath Augustine remarked that, "the reason why poor Lazarus was carried into the bosom of rich Abraham, was to shew us, that riches exclude no man from the kingdom of heaven;" the gate of which is open alike to all who either make a discreet use of riches, or bear the want of them in patience.

How many instances there are, in which persons manifestly go through more pain and self-denial to gratify a vicious passion, than would have been necessary to the conquest of it. To this it is to be added, that, when virtue is become habitual, when the temper of it is acquired, what was before confinement, ceases to be so, by becoming choice and delight.

God never gives graces, without an intent of their exercise.

The Fireside.

Fishing.

Now, when the first foul torrent of the brooks, Swell'd with the vernal rains, is ebb'd away, And, whitening, down their mossy tinctur'd stream Descends the billowy foam: now is the time, While yet the dark-brown water aids the gulle, To tempt the trout. The well dissembled fly, The rod fine tapering with elastic spring, Snatch'd from the hoary steed the floating line, And all thy slender wat'ry stores, prepare. But let not on thy hook the tortur'd worm, Convulsive, twist in agonizing folds; Which, by rapacious hunger swallow'd deep, Gives, as you tear it from the bleeding breast Of the weak, helpless, uncomplaining wretch, Harsh pain, and horror to the tender hand.

When with his lively ray the potent sun Has pierc'd the streams, and rous'd the fanny race, Then issuing cheerful, to thy sport repair; Chief should the western breezes curling play, And light o'er ether bear the shadowy clouds, High to their fount this day, amid the hills, And woodland warbling round, trace up the brooks; The next, pursue their rocky channell'd maze, Down the river, in whose ample wave Their little Naiads love to sport at large. Just in the dubious point, where with the pool Is mix'd the trembling stream, or where it boils Around the stone, or from the hollow'd bank Reverted plays in undulating flow, There throw, nice judging, the delusive fly; And as you lead it round in artful curve, With eye attentive mark the springing game. Straight as above the surface of the flood They wanton rise, or urg'd by hunger leap, Then fix, with gentle twitch, the barbed hook; Some lightly tossing to the grassy bank, And to the shelving shore, slow-dragging some, With various hand proportion'd to their force. If yet too young, and easily deceiv'd, A worthless prey scarce bends your pliant rod, Him, piteous of his youth, and the short space He has enjoy'd the vital light of Heaven, Soft disengage, and back into the stream The speckled captive throw. But should you lure From his dark haunt, beneath the tangled roots Of pendant trees, the monarch of the brook, Behooves you then to ply your finest art. Long time he, following cautious, scans the fly; And oft attempts to seize it, but as oft The dimpled waters speak his jealous fear. At last, while haply o'er the shaded sun Passes a cloud, he desperate takes the death, With sullen plunge. At once he darts along, Deep struck, and runs out all the lengthened line, Then seeks the farthest ooze, the sheltering weed, The cavern'd bank, his old secure abode; And flies aloft, and flounders round the pool, Indignant of the gulle. With yielding hand, That feels him still, yet to his furious course Gives way, you, now retiring, following now, Across the stream exhaust his idle rage: Till floating broad upon his breathless side And to his fate abandon'd, to the shore You gaily drag your unresisting prize.

THOMSON.

What a Spider Eats Per Diem.

In order to test what a spider can do in the way of eating, we arose about daybreak in the morning to supply his fine web with a fly. At first, however, the spider did not come from his retreat, so we peeped among the leaves, and there discovered that an earwig had been caught, and was now being feasted on. The spider left the earwig, rolled up the fly, and at once returned to his "first course." This was at half-past five A. M., in September. At seven A. M. the earwig had been demolished, and the spider, after resting a while, and probably enjoying a nap, came down for the fly, which he had finished at nine A. M. A little after nine we supplied him with a daddy-long-legs, which he ate by noon. At

one o'clock a blow-fly was greedily seized, and then immediately, with an appetite apparently no worse for his previous indulgence, he commenced on the blow-fly.

During the day, and towards evening, a great many small green flies, or what are popularly termed midges, had been caught in the web; of these we counted one hundred and twenty, all dead, and fast prisoners in the spider's net. Soon after dark, provided with a lantern, we went to examine whether the spider was suffering from indigestion or any other way from his previous meals; instead, however, of being thus affected, he was employed in rolling up together the various little green midges, which he then took to his retreat and tea. This process he repeated, carrying up the lots in little detachments, until the web was eaten, for the web and its contents were bundled up together. A slight rest of about an hour was followed by the most industrious web-making process, and before daybreak another web was ready to be used in the same way. Taking the relative size of the spider and of the creature it ate, and applying this to man, it would be somewhat as follows: At daybreak a small alligator was eaten; at seven A. M., a lamb; at nine A. M., a young camelopard; at one o'clock a sheep, and during the night one hundred and twenty larks. This, we believe, would be a very fair allowance for a man during twenty-four hours; and could we find one gifted with such an appetite and digestion, we can readily comprehend how he might spin five miles of web without killing himself, provided he possessed the necessary machinery.—*English Paper.*

Oiling Farm Implements.

Every farmer should have a can of linseed-oil and a brush on hand, and whenever he buys a new tool, he should soak it well with the oil and dry it by the fire or in the sun, before using. The wood by this treatment is toughened and strengthened, and rendered impervious to water. Wet a new hay-rake and when it dries it will begin to be loose in the joints; but if well oiled, the wet will have but slight effect. Shovels and forks are preserved from checking and cracking in the top of the handle by oiling; the wood becomes smooth as glass by use, and is far less liable to blister the hand when long used. Axe and hammer handles often break off where the wood enters the iron; this part particularly should be toughened with oil, to secure durability. Oiling the wood in the eye of the axe will prevent its swelling and shrinking, and sometimes getting loose. The tools on a large farm cost a large sum of money; they should be of the most approved kinds. It is a poor economy, at the present extravagant prices for labor, to set men at work with ordinary, old-fashioned implements. Laborers should be required to return their tools to the convenient places provided for them; after using, they should be put away clean and bright. The mold-boards of ploughs are apt to get rusty from one season to another, even if sheltered; they should be brushed over with a few drops of oil when put away, and will then remain in good order till wanted.—*Farm Journal.*

Special Notices.

THE GREATEST SANITARY IMPROVEMENT OF THE AGE—LEAD-ENCASED BLOCK-TIN PIPE.



This article has now been in use for the past four years, and is daily growing in public favor, being heartily indorsed by all the leading chemists and physicians in the country, also the Water Commissioners of New York, Brooklyn, and Boston. In addition to the plumbing of houses, it is largely used for conveying water from Springs and Wells, for Cooling Water by means of coils of pipe in Refrigerators, Milk and Water Coolers. Water flows through this pipe as pure as though drawn through Silver, and all danger from Lead Poison or Iron rust is thus avoided. So highly is this security valued that its use is not confined to dwellings, but many humane persons make use of this pipe for conveying water to their cattle. The cost per foot is about the same as lead pipe. In ordering, give head of water and bore of pipe. Circulars sent free THE COLWELLS, SHAW & WILLARD MFG CO., No. 213 Centre street, between Canal and Grand streets, may-it New York.

American Farmer

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4 lbs. Early Rose Potatoes	1.00	3
2 lbs. Carbolic Disinfecting Soap	1.00	3
Farmers' Gazette, Richmond, one year	1.00	3
2 qts. Sanford Corn	1.50	5
1 peck Ramsdell Norway Oats	1.50	5
American Agriculturist, one year	1.50	5
1 doz. Nap. III Strawberry Plants	3.00	10
100 Conover's Colossal Asparagus	3.00	10
Amer'n Fruit Culturist (Thomas)	3.00	10
1 pair Brahma Fowls	5.00	15
2 bush. Surprise Oats	5.00	15
1 bush. Excelsior Potatoes	5.00	15
Webster's National Pictorial Dictionary	6.00	18
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No. 4 Thermometer Churn, 10½ gallons	10.00	30
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Webster's Unabridged Dictionary	12.00	25
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Drain Tiles (\$40 worth, in sizes to suit)	40.00	100

For a larger number of subscribers than 100, special premiums will be offered upon application.

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or The Linnet, " ".....	3.00
or The Baby; or, Going to the Bath.....	3.00
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or Dead Game, after G. Bossett.....	3.00
or Easter Morning, reduced size.....	3.00
or The Doctor, after Henry Bacon.....	3.00
or After the Rains, } (companions, after Miss Florence Peel,) each	3.00
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or Wild Roses, after Mrs. Nina Moore.....	3.00
For 10 subscribers.... Near Bethel, on the Androscogin, after S. Colman.....	3.50
For 12 subscribers.... { Poultry Life—A } after Lemmens, per pair.....	4.50
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For 14 subscribers.... Group of Ducklings, after Bricher.....	5.00
or Group of Quails, " ".....	5.00
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or Late Autumn in White Mountains, after A. T. Bricher.....	6.20
or Spring, after A. T. Bricher.....	6.00
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or Winter, after Morveller.....	6.00
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or Blackberries in Vase.....	6.00
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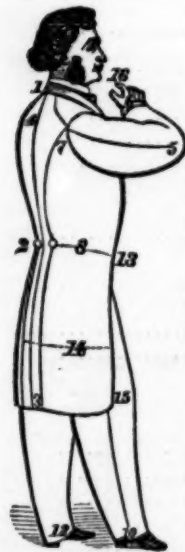
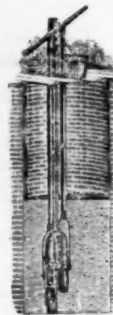
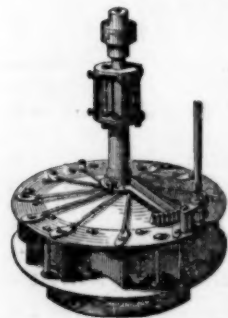
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Arm.....4 to 5 and 6 | Height ft in.
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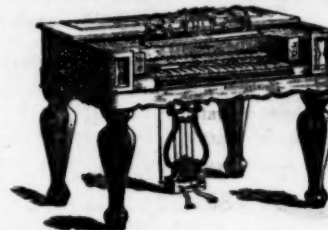
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oct-1y

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